2. The electronic device defined in claim 1, wherein the alignment structures comprise first and second magnetic structures.

3. The electronic device defined in claim 2, wherein the first and second magnetic structures are configured to bias the rear housing wall towards equipment overlapping the electronic device and to align the first and second antenna resonating elements with third and fourth antenna resonating elements on the equipment.

4. The electronic device defined in claim 1, further comprising:

near-field communications circuitry coupled to the first and second antenna resonating elements and operable to use the first and second antenna resonating element to transmit the radio-frequency signals above 10 GHz.

5. The electronic device defined in claim 4, further comprising:

a substrate interposed between the display and the rear housing wall, the antenna resonating element being formed at the substrate.

6. The electronic device defined in claim 5, further comprising:

an additional antenna resonating element that overlaps the rear housing wall and that is operable to transmit additional radio-frequency signals through the rear housing wall, the first antenna resonating element being aligned with an antenna aperture defined at least in part by the additional antenna resonating element.

7. The electronic device defined in claim 1, further comprising:

a sensor module; and

coil structures that surround the sensor module, the attachment structures having first and second portions, wherein the sensor module and the coil structures are interposed between the first and second portions of the attachment structures.

8. A wristwatch having a first face and a second face that opposes the first face, comprising:

a display at the first face;

a rear housing member at the second face;

an antenna array having a plurality of antenna resonating elements that overlap the rear housing member; and

radio-frequency transceiver circuitry coupled to the plurality of antenna resonating elements and operable to transmit and receive radio-frequency signals through the rear housing member using the plurality of antenna resonating elements.

9. The wristwatch defined in claim 8, wherein the plurality of antenna resonating elements are circumferentially distributed about an axis.

10. The wristwatch defined in claim 9, further comprising:

sensor circuitry, the axis extending through the sensor circuitry; and

a coil that surrounds the axis.

11. The wristwatch defined in claim 8, wherein the radio-frequency transceiver circuitry comprises near-field communications circuitry and the radio-frequency signals comprises radio-frequency signals above 10 GHz, the near-field communications circuitry being operable to transmit and receive the radio-frequency signals above 10 GHz through the rear housing member using the plurality of antenna resonating elements.

12. The wristwatch defined in claim 11, wherein the near-field communications circuitry is operable to transmit and receive the radio-frequency signals above 10 GHz through the rear housing member using only a subset of the antenna resonating elements at a given time.

13. The wristwatch defined in claim 12, wherein the near-field communications circuitry is operable to transmit and receive the radio-frequency signals above 10 GHz through the rear housing member using a first pair of the antenna resonating elements in plurality of antenna resonating elements and subsequently a second pair of the antenna resonating elements in the plurality of antenna resonating elements.

14. The wristwatch defined in claim 13, wherein the near-field communications circuitry is configured to selectively use only one of the first and second pairs of antenna resonating elements to perform data transfer operations.

15. The wristwatch defined in claim 8, further comprising:

a backside circuitry module having a substrate to which the radio-frequency transceiver circuitry is mounted, the plurality of antenna resonating elements being formed at the substrate.

16. The wristwatch defined in claim 8, further comprising:

control circuity operable to control an operation of the radio-frequency transceiver circuitry; and

a printed circuit substrate to which the control circuitry and the radio-frequency transceiver circuitry is mounted, the plurality of antenna resonating elements being formed at the printed circuit substrate.

17. An electronic device, comprising:

a housing;

a coil structure;

wireless power transmitting circuitry coupled to the coil structure and configured to use the coil structure to convey wireless power signals through a portion of the housing;

a plurality of antenna elements for an antenna array operable to convey radio-frequency signals through the portion of the housing; and

control circuitry configured to identify wireless performance information, to select a subset of the plurality of antenna elements for conveying the radio-frequency signals based on the identified wireless performance information, and to control the selected subset of the plurality of antenna elements to perform data transfer operations.

18. The electronic device defined in claim 17, wherein the radio-frequency signals comprise radio-frequency signals above 10 GHz, the electronic device further comprising:

radio-frequency transceiver circuitry coupled to the plurality of antenna elements and operable to convey the radio-frequency signals above 10 GHz through the portion of the housing using the plurality of antenna elements.

19. The electronic device defined in claim 17, wherein the antenna array is operable to sequentially use respective pairs of antenna elements in the plurality of antenna elements at a time to receive additional radio-frequency signals while identifying the wireless performance information.

20. The electronic device defined in claim 19, wherein the control circuitry is configured to identify the wireless performance information based on a comparison of the additional radio-frequency signals received from the respective antenna elements in the pairs of antenna elements.

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